

3.4 Wetlands and Vegetation

Several natural resource investigations have been completed for the project site and makeup water supply pipeline, Bonneville's transmission line corridor and switchyard, and the natural gas pipeline.

- A wetland evaluation of the project site and associated facilities was conducted by Smayda Environmental Associates, Inc. (2001a) using the 1987 U.S. Army Corps of Engineers (Corps) Wetland Delineation Manual. Evaluation was based on an extensive review of existing information and supplemented by a series of field visits conducted in fall 2000. The results of this delineation have been partially confirmed by the Washington Department of Ecology. A copy of this report is included in Appendix B.
- A spring 2001 wetland delineation for the project site and associated facilities was conducted by Meridian Environmental, Inc. The delineation used the Corps Manual (1987), the Washington State Wetlands Identification and Delineation Manual (Ecology 1997), a wetland categorization and functions assessment applying Ecology's rating system for eastern Washington (Ecology 1991), and the Wetland and Buffer Functions Semi-Quantitative Assessment Methodology (Cooke 2000). A copy of this report is also included in Appendix B.
- Botanical field surveys were conducted to determine the presence of special-status plant species, native shrub-steppe habitat, and noxious weeds, with results presented in the Wildlife and Botanical Survey Report (Smayda Environmental 2001b) (see Appendix B).
- Ground surveys were conducted for Bonneville by ENTRIX, Inc. in June and July 2001.

Wetland plant community types referred to in this section are based on the U.S. Fish and Wildlife Service (USFWS) wetland classification system (Cowardin et al. 1979). They include palustrine open water (POW), palustrine emergent (PEM), and palustrine scrub-shrub (PSS). Wetlands are defined by the state of Washington, the state of Oregon, and the Corps as follows:

"Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR 328.3, 40 CFR 230.3).

3.4.1 Existing Conditions

3.4.1.1 Wetlands

Generation Plant

Six wetlands and two irrigation ponds have been identified on or adjacent to the project site and proposed access roads. These wetlands and ponds are shown in Figure 3.4-1 and in the wetland evaluation and delineation reports presented in Appendix B. Seven of the eight identified wet areas are manmade and have been excavated in upland soils for agricultural purposes of storing and conveying irrigation water. Ponds A and E and wetlands B, C, and D are associated with constructed irrigation ponds or ponded water around irrigation pipes. Some of the manmade wetlands (wetland B, F, G, and H) receive water that runs off from irrigation originating upslope.

Irrigation Pond A is the main irrigation pond located in the northeast corner of the project site and is approximately 3 acres when full. A berm of excavated soils surrounds the pond, limiting wetland vegetation to a narrow band (less than 1 acre) of cottonwood, Russian olive, cattails, hardstem bulrush, reed canarygrass, smartweed, and burdock.

Wetland B is a small (0.35-acre) PEM/PSS wetland associated with a small, deep excavation located in the southwestern portion of the site. This wetland is rated a Category III wetland. A large-diameter irrigation pipe with a T-connection is located in the excavation. Water accumulates in the bottom of the excavated area, and cattails, hardstem bulrush, and willow are present. Hydrology is also maintained by irrigation from the alfalfa field upslope. The excavation includes a ditched area parallel to U.S. Highway 12 that supports a windrow of poplar trees. The area dominated by wetland vegetation is less than 1 acre in size.

Wetland C is a small (0.67-acre) POW/PEM wetland associated with an excavated and narrow, steep-banked irrigation pond located in the southwest quarter of the site. This pond is a Category III wetland and supports a narrow discontinuous band of predominately emergent wetland species including cattail, hardstem bulrush, American bulrush, and reed canarygrass on its eastern edge. Big sagebrush, weedy grass species, and two ponderosa pine saplings are present on the western edge.

Wetland D is a 2.33-acre POW/PEM/PSS wetland and is the largest wetland complex on the project site. It is rated a Category III wetland. It is situated in the northwest corner of the property and consists of two irrigation ponds with an interconnecting drainageway and a drainageway carrying water off the project site. Wetland vegetation includes emergent species such as common cattail, hardstem bulrush, reed canarygrass, common burdock, and purple loosestrife, as well as trees and shrubs, including weeping willow, Pacific willow, and Russian olive. The northernmost irrigation pond is drained at its northwest corner by an approximately 8-inch-diameter pipe that leads to a drainageway paralleling U.S. Highway 12. This waterway drains to the north, crosses under the

driveway to the property, and continues northward for approximately 50 feet before crossing under U.S. Highway 12 through an approximately 10-inch culvert.

Irrigation Pond E lies adjacent to the north boundary of the project site in the northeast corner of the property and is less than 1 acre in size. The project may utilize an easement along the northeast boundary of the project site. Along the northern half of the easement, an excavated irrigation canal and pond are present. Vegetation bordering these features includes a narrow band of reed canarygrass, western dock, mullein, yellow foxtail, pale smartweed and scattered individual cottonwood and willow.

Although review of National Wetlands Inventory mapping (USFWS 2001) shows wetland F as a 3-acre PEM wetland, field delineations identified it as a small (0.3-acre) cluster of three PEM wetlands. This complex lies on adjacent property (Jausaud property) south of the project site. All three of these wetlands were rated together and classified a Category III. This area is a mosaic of wetland and nonwetland vegetation dominated by Russian olive, cottonwood, and occasional patches of hardstem bulrush, cattail, and reed canarygrass. Other dominants include knapweed, Russian thistle, cheatgrass, and white goosefoot. The area dominated by wetland vegetation is approximately 4 acres. This wetland area is located southwest and downslope of the irrigated crop circle on the project site and drainage water from the irrigated circle may be supporting wetland vegetation. In addition to the project site alfalfa field, water would also be likely to drain to this wetland complex from the Simplot stock tanks.

Wetlands G and H are small (0.25 and 0.26 acre, respectively) PEM wetlands rated as Category IV wetlands. Both of these wetlands lie in a depression paralleling the access road. Wetland G, which may have resulted in part from road construction, is dominated by Canada thistle and white top. Wetland H is supported by irrigation upslope (alfalfa field) and is dominated by reed canarygrass, Canada thistle, white top, and purple loosestrife. Willow saplings are also present.

Total wetland area is less than 5 acres. Each of these wetlands appears to be manmade or induced by human activities.

A wetland evaluation report (Smayda Environmental 2001a) determining wetlands, except wetland F, to be nonjurisdictional has been submitted to both the Corps and Ecology for concurrence of findings. The Corps does not regulate activities in wetlands that were constructed in uplands, unless the purpose for which they were constructed has been abandoned for more than 10 years. Ecology's regulation of wetlands is similar to that of the Corps. However, Ecology considers wetlands that were created unintentionally to be jurisdictional, even if created in uplands, and also considers wetlands with hydraulic continuity to streams to be jurisdictional, under the State of Washington Shoreline Management Plan. Of these wetlands, only irrigation ponds A and E are clearly considered nonjurisdictional under Ecology's regulations (Merker 2001).

Ecology's guidance for protection is to maintain 50- to 100-foot buffers around Category III wetlands and 25- to 50-foot buffers around Category IV wetlands.

Water Pipeline

No wetlands are present along the makeup water supply pipeline route. Two irrigation storage ponds are present in the vicinity of the proposed makeup water supply pipeline. These excavated irrigation storage ponds do not support wetland vegetation.

Transmission Line and Associated Facilities

Wetlands have been assessed along the proposed right-of-way from published and unpublished literature, consultation with resource agencies, and ground surveys completed in June and July 2001 (ENTRIX 2001). Identified wetland areas may qualify as jurisdictional wetlands under guidelines established by the Corps, Ecology, or the Oregon Division of State Lands. For wetland areas that may be disturbed, dredged, or filled during construction of the proposed transmission line project, a wetlands delineation report would be developed and submitted to the appropriate agencies for verification of jurisdictional status prior to the start of construction.

The transmission line right-of-way traverses between 35 and 37 acres of potential wetland areas, including the Walla Walla River, Juniper Canyon, the Wanaket Wildlife Area east of Umatilla, a small wetland at the western end of the alignment, and various riparian forested wetland regions dominated by Russian olive. The transmission line right-of-way also passes near wetlands identified near the project site, including wetland F and a sedimentation pond (lagoon) to the north of the proposed transmission line before it enters the project site. The lagoon is a manmade water body created to store or convey irrigation water or site drainage water.

Wetlands along the Walla Walla River are part of the McNary Management Area. This area includes woody riparian vegetation and fringing freshwater marsh vegetation. The riparian forest/shrubland is dominated by willow and cottonwood. The freshwater marsh is dominated by reed canarygrass and common reed.

Juniper Canyon has a perennial stream with a narrow fringe of freshwater marsh vegetation. This vegetation is dominated by cattail, bulrushes, water smartweed, sedges, and rushes.

East of McNary is an extensive area of pothole ponds and wetlands that is for the most part owned by Bonneville and managed by the CTUIR as the Wanaket Wildlife Area. The wetlands management goal for the 2,817-acre Wanaket Wildlife Area is to maintain vegetation around the edges of the wetlands as feed for migrating and nesting birds. The area contains potholes ranging from relatively shallow temporary ponds to deep permanent ponds. The wetlands generally have their water levels regulated by irrigation water drawn from the Columbia River. The wetlands are generally filled by the end of summer and then allowed to naturally recharge and recede through the following spring.

Deeper ponds that retain water longer and permanent ponds have edges dominated by cattail, bulrushes, water smartweed, sedges, and rushes. Nonnative grasses and plants,

such as cheatgrass and Russian olive, form upland vegetation adjacent to and between many of the pothole lakes (Scheeler and Quaempts pers. comm.).

A small freshwater marsh is also present at the western end of the alignment, just east of the McNary Substation. This marsh is dominated by emergent vegetation including cattail, bulrushes, water smartweed, sedges, and rushes.

Wetland F, described above, is in the vicinity of the right-of-way near the plant site.

Natural Gas Pipeline

No wetlands have been identified along the natural gas pipeline route. One excavated irrigation storage pond is present along the natural gas pipeline route, but it does not support wetland vegetation.

3.4.1.2 Vegetation

The project site and associated pipelines lie within the Pacific Northwest's shrub-steppe vegetation zone (Franklin and Dyrness 1988), which is generally characterized by dry, hot summers and cold, moist winters. The project area is located within the big sagebrush-bluebunch wheatgrass association zone (Daubenmire 1970) that dominates most the Columbia River Basin Province of eastern Washington. The dry climate and sandy soils have historically produced an ecosystem dominated by woody vegetation and perennial grasses interspersed with a few forbs.

Botanical surveys were conducted in fall 2000, winter 2000, and spring 2001 (Smayda Environmental 2001b, 2001c). These surveys were designed to determine the presence of special-status plant species, native plant dominated shrub-steppe habitat, and noxious weeds. The Wildlife and Botanical Survey Report and the Wetland Delineation Report present a list of plant species (including common and scientific names) observed during field surveys of the project area and pipeline laterals (see Appendix B).

Generation Plant

Agriculture, grazing and industrial development have altered and disturbed the native vegetation (Chen-Northern 1993). The predominant plant species within the project site are associated with agricultural activities, specifically irrigation practices. The current use of the agricultural crop circle within the proposed facility footprint is cultivation of alfalfa (approximately 125 acres). Irrigated orchards are present on the north parcel and abandoned orchards are present in three corners of the project site. The margins of the irrigated circle are dominated by weedy forbs and grasses and scattered shrubs. This vegetation includes native species, such as big sagebrush and gray rabbitbrush, but is dominated by weedy, invasive species such as tumble mustards, diffuse knapweed, and cheatgrass. The area has been greatly altered by grazing, fire, and other physical disturbances that have encouraged the presence of these invasive plant species. No high quality native shrub-steppe habitat was documented during the botanical surveys of the

project site. Figure 3.4-1 shows the habitats present on the project site and adjacent parcels of land to the north and south.

A mixture of native and nonnative species has developed along the manmade and unlined irrigation ponds and ditches located in the northeast and northwest corners and along the western and southwestern edges of the project site.

The primary irrigation supply pond in the northeast corner is surrounded by a narrow band of vegetation (about 1 acre) consisting of Great Plains cottonwood, honey locust, sandbar willow, Russian olive, common cattail, and hardstem bulrush. Disturbed shrub-steppe habitat is present between the irrigation ponds on the western edge of the project site. Dominant grasses and forbs include cheatgrass, Russian thistle, yellow starthistle, perennial pepperweed, kochia, and Canada thistle. Shrub species include big sagebrush and both gray and green rabbitbrush. The western portion of the project site, exclusive of agricultural lands, totals approximately 16 acres. Including agricultural land the total area covered with vegetation is approximately 135 acres.

Access Road

Access to the project site during construction would be achieved through a temporary access road on the project site and the adjacent Jaussaud property to the south. The temporary access road would intersect U.S. Highway 12 at approximately milepost 301.9. After construction is complete, the temporary U.S. Highway 12 intersection would revert to a gated access as a second means of emergency access until such time as a permanent north to south parallel county roadway is developed. A permanent county access road leading north from the project site to Dodd Road would be developed.

The temporary county access road would pass through disturbed shrub-steppe habitat characterized by cheatgrass, knapweed, Russian thistle, and perennial pepperweed. The permanent county access road would run through an existing crop circle to Dodd Road. Vegetation within this crop circle reflects the annual crop that is seeded (primarily alfalfa, potatoes or corn) or the weedy species present on fallow areas. Once the permanent county access road is completed, the temporary access road would be revegetated.

Water Supply Pipeline

The first segment of the makeup water supply pipeline route would be located on disturbed shrub-steppe habitat and agricultural lands south of the J.R. Simplot Company feedlot (Figure 3.4-2). A high proportion of weedy, nonnative species intermixed with native shrubs characterizes this segment of the route. The dominant shrub species are big sagebrush, green rabbitbrush, and gray rabbitbrush. Cheatgrass is the dominant grass species, with occasional bluebunch wheatgrass and Idaho fescue. Russian thistle, Canada thistle, knapweed, and yellow starthistle are common.

The second segment of the route would be located on lands currently managed as part of the Boise Cascade Corporation fiber farm. The Boise Cascade Corporation fiber farm stands are plantations of hybrid poplar grown on a 7-year harvest rotation. The dense

stands are intensively maintained and few other plant species are present. Weedy plants that grow along the access roads adjacent to the stands include cheatgrass, Russian thistle, and perennial pepperweed.

Transmission Line and Associated Facilities

The right-of-way would cross a varied topography, including stream valleys and floodplains with center-pivot irrigation circles and riparian and wetland vegetation; undulating hills with grain fields, other agriculture, grasslands; and a plateau with native shrublands, pothole wetlands, and urban development. Total acreages of plant community types located in the area of the right-of-way are listed in Table 3.4-1.

Table 3.4-1 Vegetation Types along Transmission Line Right-of-Way

Vegetation Type	Acres¹
Agricultural	119
Burned shrubland	49
Freshwater marsh	4-6 ²
Grassland	118
Pasture	56-58
Riparian	25
Russian olive	21
Big sagebrush-bitterbrush steppe	32
Sagebrush steppe	228
Sagebrush steppe/grassland	7
Open water	6
Grand Total	645-649
¹ Estimated acres of vegetation types conservatively assume a 200-foot right-of-way near the existing PacifiCorp transmission line.	
² Acre range for freshwater marsh and pastureland consider two alternate routes for the right-of-way entering the McNary Substation.	

The Wallula-Smiths Harbor segment would traverse approximately 5.1 miles of center-pivot irrigation farmland, disturbed shrub-steppe habitat, and the hybrid cottonwood tree plantation. The new Smiths Harbor-McNary segment would parallel an existing 500 kV Bonneville transmission line beginning in the Walla Walla River Valley. It then would cross the Walla Walla River and climb through rangeland to the tops of the broad ridges along the Columbia River generally planted with wheat. Slopes are typically steep from the ridgetops into the interspersed drainages. Most of the drainages in the project vicinity are dry nearly all year long and the valley bottoms, as well as the slopes, usually are vegetated by cheatgrass-dominated grassland. However, Juniper Canyon has a perennial stream bordered by a narrow band of freshwater marsh vegetation (see Section 3.4.1.2, Wetlands). A few of the uncultivated rangeland ridgetops just south of the Walla Walla River are vegetated by sagebrush-steppe and grassland with scattered big sagebrush and other small shrubs among the cheatgrass. These sagebrush and grass vegetation communities are referred to as shrub-steppe habitat.

West of Juniper Canyon, vegetation along the project route consists of an intermingling of sagebrush-steppe dominated by big sagebrush and rabbitbrush, and big sagebrush-bitterbrush shrubland dominated by bitterbrush and big sagebrush. Grasses, including cheatgrass, and other herbaceous plants grow between the shrubs. The area west of Juniper Canyon had burned shortly before the vegetation study was conducted, and part of the project route passes through this burned area.

Before reaching Umatilla, the transmission line route would cross an area of pothole wetlands interspersed with sagebrush-steppe/grasslands. The sagebrush-steppe/grassland areas are dominated by big sagebrush and cheatgrass. The route would continue across pastures and developed areas, and cross a freshwater marsh just before the McNary Substation in Umatilla.

Natural Gas Pipeline

The natural gas pipeline route passes through shrub-steppe habitat characterized by a high proportion of weedy nonnative species (Figure 3.4-2). The dominant shrub species are big sagebrush, green rabbitbrush, and gray rabbitbrush. Cheatgrass is the dominant understory species. Russian thistle, Canada thistle, knapweed, and yellow starthistle are common. Vegetation within the crop circles reflects the annual crop that is seeded (primarily alfalfa, potatoes, and corn) or the weedy species present on fallow sites.

3.4.1.3 Special-Status Plant Species

Generation Plant

Data provided by the Washington Department of Natural Resources Natural Heritage Program indicate that one special-status plant species, gray cryptantha, has been documented in the project area within the last 20 years. Table 1 of the Wildlife and Botanical Survey (Smayda Environmental 2001b) includes a historic record of special-status plant species in the project vicinity. This species grows in loose, sandy soils and flowers in May and June; it was the primary target species of the rare plant survey conducted in late spring (Smayda Environmental 2001b).

Two other rare plant species may occur in the project area, based on habitat requirements: beaked cryptantha and prairie lupine. Beaked cryptantha blooms from late April to mid-May, and can be identified through mid-June. Prairie lupine flowers May to June. In addition, shrub-steppe is designated as a priority habitat.

Botanical surveys were conducted for the plant site and the pipelines. No special-status plant species and no high quality native shrub-steppe habitat were observed during the botanical surveys in these areas. Shrub-steppe habitat is present in the project area as only small, fragmented parcels of disturbed habitat.

Transmission Line Right-of-Way

In addition to consulting the Washington Department of Natural Resources Natural Heritage Program, the Oregon Natural Heritage database and the Bureau of Land Management list of sensitive plants were utilized. Botanical surveys were conducted along the entire right-of-way in early summer (ENTRIX 2001). No special-status plant species were observed within the area that would potentially be disturbed. Additional surveys of actual tower locations and access road locations will be performed before the completion of line design.

Shrub-steppe habitat is present in the project area as small, fragmented parcels of disturbed habitat.

3.4.1.4 Noxious Weed Species

Generation Plant

A botanical survey was conducted to determine the presence and extent of noxious weeds within the project area and associated laterals. Plants observed in the project area that fall under management requirements by the State of Washington include Russian knapweed (observed in several locations on the project site and adjacent property to the south), Oxeye daisy (observed in trace quantities along the western segment of the proposed natural gas pipeline), tall white top (common on portions of the project site and Jaussaud property), and Swainsonpea (observed primarily on the project site and Jaussaud property). All four of these species are designated for control in Walla Walla County.

Additional plants observed in the project area and specified for control by the Walla Walla County Noxious Weed Control Board include rush skeletonweed, diffuse knapweed, yellow starthistle, kochia, cereal rye, and purple looserstrife.

Transmission Line Right-of-Way

Preconstruction noxious weed surveys would be conducted during the summer of 2002 to determine the current extent of noxious weeds along the proposed right-of-way for the transmission line. The survey would document the presence and extent of species listed as a concern within Walla Walla County in Washington and Umatilla County in Oregon. A postconstruction survey 1 year after the completion of construction would occur to determine any change in the presence of noxious weeds. This information would be used to determine a course of action to prevent the spread of noxious weeds along the right-of-way.

3.4.2 Impacts of the Proposed Action

Prior to construction, an erosion control, revegetation and landscaping plan would be developed for the project site and all other areas to be affected by construction. The plan

would provide detailed specifications of erosion control methods, project site preparation for areas to be revegetated, seeding and planting species mixes, and long-term vegetation maintenance objectives.

In addition, the applicant is providing mitigation for the potential loss of wildlife habitat value provided by the wetlands through the enhancement of riparian habitat along the Walla Walla River via purchase and transfer of water rights.

BMPs and mitigation measures have been incorporated into the project design for both the plant facilities and the transmission line segments and switchyard to mitigate impacts for vegetation and wetlands (see Appendix A). Impacts of construction, operation, and maintenance of the proposed actions and alternatives are assessed in light of these measures.

3.4.2.1 Construction

Wetlands

Generation Plant and Access Road

The project is designed to avoid impacts on wetlands. No project features located at the plant site (buildings, pipelines, transmission lines, access roads) would be constructed within wetland buffers. The applicant does not propose any additional activities that would involve disturbance, dredging, or filling of wetlands.

Irrigation Pond A (Figure 3.4-1) would be filled and leveled as part of the project site grading. During construction, a total of approximately 3 acres of irrigation pond and 1 acre of wetland vegetation would be permanently converted to upland habitat at this location. Pond A is considered nonjurisdictional under Ecology regulations.

Wetlands (B, C, D, G, and H) located along the western edge of the project site would not be directly affected by construction activities. Irrigation pond E on the adjacent property to the north would not be directly affected by construction activities. A 100-foot buffer would be observed around these wetlands to exclude construction equipment and access.

The wetland F complex, located on the Jaussaud property, would be protected by a 100-foot buffer and would not be directly affected by construction activities. In addition, the proposed temporary access road to the project site would be located to avoid both the wetland and its buffer.

The proposed permanent project access road from the north to Dodd Road does not cross any wetlands or wetland buffers.

Water Supply Pipeline

No wetlands are located along the makeup water supply pipeline route. Implementation of BMPs and mitigation measures presented in Appendix A would protect surface water features from the introduction of sediments or contaminants during construction.

Transmission Line and Associated Facilities

Structures and roads would be sited to avoid wetlands and wetland buffers, to the maximum extent practicable. There is one location north of existing towers 56-3 and 56-4 on the Lower Monumental–McNary transmission line where a new access road would need to cross a small, unnamed stream approximately a mile east of Highway 207. A 60-inch culvert and approximately 50 tons of fill material would be needed to cross the drainage.

Impacts could result from widening existing access roads or clearing vegetation within the 150-foot right-of-way or for staging areas. Wetland F in the general vicinity of the plant site would not be disturbed by right-of-way construction. The lagoon north of the right-of-way and east of the plant site would not be disturbed during construction.

Natural Gas Pipeline

No wetlands are located along the natural gas pipeline route. Implementation of BMPs and mitigation measures presented in Appendix A would protect surface water features from the introduction of sediments or contaminants during construction.

Vegetation

Generation Plant

Construction activities at the 175.48-acre project site include grading, leveling, and excavation for the generation plant and associated facilities, including the evaporation and detention ponds and access roads. Approximately 125 acres of agricultural cropland and approximately 20 acres of fragmented disturbed shrub-steppe habitat, including some small trees and shrubs around irrigation pond A, and abandoned orchards would be permanently removed. Areas not occupied by the power plant facilities would be reseeded with native grasses and shrubs, including 53 acres previously used for agriculture and irrigation facilities. This would result in a permanent conversion of about 78 acres of agricultural cropland (currently alfalfa) into industrial facilities. The area is zoned for industrial development and represents a small percentage of available agricultural land in Walla Walla County (approximately 125 acres of more than 714,000 acres).

The vegetation surrounding wetlands on the western boundary of the project site would be protected by a 100-foot wetland buffer zone to ensure that construction equipment and activity would be excluded from the area. There would be no impacts to this vegetation during construction.

Access Road

A temporary access road of approximately 0.5 mile would be constructed from the project site to U.S. Highway 12, temporarily affecting 2 acres of disturbed shrub-steppe habitat. Upon completion of construction, which is estimated at 2 years, the temporary access road would be gated. This area would be revegetated with grasses and shrubs after the construction of the county north-south interconnecting road network.

The permanent plant access road from Dodd Road south to the power plant would cross existing irrigated cropland and native shrubs and grasses. This road would become part of the permanent county north-south off-highway road network. A total of approximately 10 acres of existing irrigated cropland and 2 acres of native shrub/grasses would be permanently removed for placement of the county access road. Up to an additional 5 acres of existing irrigated cropland would be disturbed during construction and would be returned to either irrigated cropland or native habitat.

Water Supply Pipeline

Installation of the makeup water supply pipeline would require a construction corridor of 75 feet, temporarily affecting approximately 4.5 acres of disturbed shrub-steppe and about 22 acres of land currently in hybrid poplar stands. (These acreages represent the water line apart from the corridor shared with the gas pipeline.)

Transmission Line and Associated Facilities

Potential impacts to vegetation include removal or trampling and soil compaction from construction activity at tower locations and along new access roads. Clearing of vegetation would be a strip 20 feet wide for new access roads and about 0.25 acre at each tower location. There would be minimal clearing of vegetation within the right-of-way. Compaction of soils can inhibit infiltration of water into the soil and inhibit the germination of seeds; it favors development of bare-soil species, including noxious weeds.

Approximately 34 acres of land would be cleared for new access roads and improvements to existing access roads. Installation of the tower structures would temporarily disturb another 41.0 acres and permanently disturb 8.4 acres of vegetation along the right-of-way (Table 3.4-2). Approximately 17.6 additional acres would be temporarily disturbed during placement of the conductors.

Table 3.4-2 Estimated Impacts from Tower and Conductor Construction

	Proposed Action Standard Towers (1,150-foot average span)			Alternative using Standard Towers + Alternate Towers ² (1,500-foot average span)				Pulling and Reeling Sites ³
		Acres Disturbed		# Towers		Acres Disturbed		Acres Disturbed
Vegetation Types	# Towers	Temporary	Permanent	Standard	Alternate	Temporary	Permanent	Temporary
Grassland	31	7.8	1.6	19	10	7.3	1.5	3.4
Agriculture (nonirrigated)	27	6.8	1.4	0	21	5.3	1.1	2.9
Agriculture (irrigated)	15	3.8	0.8	15	0	3.8	0.8	1.6
Sagebrush-steppe	53	13.3	2.7	28	19	11.8	2.4	5.8
Burned shrubland	10	2.5	0.5	0	8	2.0	0.4	1.1
Big sagebrush	4	1.0	0.2	0	3	0.8	0.2	0.4
Russian olive	5	1.3	0.3	5	0	1.3	0.3	0.4
Pasture	14	3.5	0.7	14	0	3.5	0.7	1.5
Residential/industrial ¹	4	1.0	0.2	4	0	1.0	0.2	0.4
Riparian	0	0.0	0.0	0	0	0.0	0.0	0.1
Totals	163	41.0	8.4	85	61	36.8	7.6	17.6
<p>Temporary impact = 0.25 acre/tower Permanent impact = 0.05 acre/tower Pulling and reeling temporary disturbance = 1 acre/2 miles of transmission line (acreage estimates are prorated based upon abundance of vegetation type). ¹ Not included in vegetation survey map, found in Section 3.10, Land Use. ² Longer conductor spans for alternative (acreage estimates for long span segment are prorated based upon abundance of vegetation type). ³ Temporary acres disturbed by pulling and reeling would be the same for the proposed action or the alternative.</p>								

The area around the Smiths Harbor Switchyard is in irrigated farmland interspersed with disturbed shrub-steppe habitat. Vegetation surrounding the switchyard would be impacted during an upgrade of the 2-mile access road into the switchyard. Approximately 7 acres of farm and shrub-steppe vegetation would be permanently removed for the installation of the switchyard and associated fencing.

Natural Gas Pipeline

Construction activities would be located within a 75-foot-wide corridor surrounding the pipeline trench. A total of approximately 54 acres of vegetation would be temporarily disturbed including 16 acres of disturbed shrub-steppe, 28 acres on the Boise Cascade Corporation fiber farm (including both poplar stands and existing utility corridor), and 10 acres of disturbed shrub-steppe between agricultural circles. In addition, approximately 5 acres of disturbed shrub-steppe habitat would be disturbed at the natural gas pipeline tap site where the new lateral would be connected to the two existing GTN natural gas pipelines, of which approximately 1 acre would be permanently converted to industrial use. Some areas would be revegetated with native species.

Noxious Weed Species

Prior to project construction, the applicant would prepare an erosion control, revegetation, and landscaping plan for the project site and all other areas to be affected by construction. The plan would provide detailed specifications of erosion control methods, project site preparation for areas to be revegetated, seeding and planting species mixes, and long-term vegetation maintenance objectives. The plan would include proposals for weed control developed in consultation with the Walla Walla County Noxious Weed Control Board.

Bonneville would reseed disturbed areas along access roads and the transmission line right-of-way to revegetate with native species as quickly as possible following construction. Noxious weed surveys would be utilized to develop plans to prevent the spread of weeds in coordination with the appropriate counties and landowners.

3.4.2.2 Operation and Maintenance

Wetlands

Generation Plant

Indirect impacts to wetlands B, C, D, F, G, and H are expected as a result of stopping irrigation on the project site. The conversion of land from existing irrigated agriculture to power production would alter hydrological support to these wetlands, and it is likely their characteristics would change. Potentially, 4.13 acres of wetland area lying to the west and southwest of the project site could be converted to upland habitat. Functions and

values provided by the wetlands, such as water attenuation and biofiltration, as well as plant community structure and composition would be altered.

Other sources of irrigation upslope of these wetlands may continue to supply subsurface flows that would support many of the weedy facultative species that currently dominate the project site, including PSS and/or small patches of upland shrub communities.

Protection of buffers around the wetlands may benefit wildlife in the vicinity, even if the wetlands become drier. Habitat changes and potential impacts on wildlife are discussed in Section 3.6, Wildlife. Changes in groundwater recharge and discharge as a result of the project are discussed in Section 3.3, Water Resources.

Water Supply Pipeline

No wetlands are located along the makeup water supply pipeline route. Therefore, there would be no impacts to wetlands from operation and maintenance activities.

Transmission Line and Associated Facilities

Little or no impact on wetlands is expected during operation because activities would usually occur within established roads and turnarounds. Potential impacts to wetland vegetation include the risk of fire from maintenance vehicles, lightning, and downed transmission lines. The project components include ground wires and counterpoise to reduce fire risk from lightning strikes. Maintenance vehicles could impact wetlands if access to downed transmission lines becomes necessary. Temporary clearing and trampling of wetland vegetation, as well as soil compaction, could occur. Standard precautions would serve to minimize both of these potential impacts.

Natural Gas Pipeline

No wetlands are located along the natural gas pipeline route. Therefore, there would be no impacts to wetlands from operation and maintenance activities.

Vegetation

Generation Plant

Areas not occupied by the generation plant facilities, including onsite evaporation ponds, stormwater detention ponds, and access roads would be seeded in grasses and shrubs native to the area. Long-term vegetation maintenance objectives would be implemented from guidance in the landscaping plan. If cultivated species or lawn are planted near the facilities they would need to be regularly maintained. Those plant species conducive to the climate would need little maintenance other than possible trimming to prevent interference with normal operations at the project facility.

Cooling Tower Drift. The wet mechanical-draft cooling towers would create drift (water mist carried in the wind) containing dissolved solids such as sulfate, sodium, chloride, calcium, nitrate, silicon dioxide, bicarbonate, potassium, magnesium, phosphate, and other chemicals.

The cooling towers would be located in the eastern portion of the project site adjacent to the J.R. Simplot Company feedlot, where the prevailing northeast winds would carry the drift. As discussed in detail in Section 3.2, Air Quality, the projected maximum salt deposition from cooling tower water drift for the proposed project is less than the threshold for damage to sensitive agricultural crops under arid conditions. As a result, the deposition of salts to the less-sensitive natural vegetation found within the project area would not cause detectable reduction in growth or significant impact to natural vegetation.

Application of the salt to vegetation at the rate projected for the project site would be neutral to beneficial to overall plant growth. Bicarbonates, chlorides, sodium, and silica are ubiquitous in the natural environment and are tolerated by plants to a relatively high degree. Bicarbonate and silica compounds are considered nutrients that aid in plant growth. Sodium and chlorides have a potential for deleterious effects, but in low amounts would not inhibit growth. Deposition of these compounds at the maximum levels projected near the project site would not be harmful to the local natural vegetation.

Nitrogen Deposition. During operation, nitrogen emissions would be higher than natural background due to the firing of natural gas fuel. There is a general lack of essential fertilizing elements in the soils surrounding the project site (nitrogen, potassium, and phosphorous). Dispersion and deposition of nitrogen would occur over a large area downwind of the project site. Concentrations of nitrogen likely to be introduced into the area may have a small affect on weed growth and spread.

Water Supply Pipeline

Periodic vehicle access would be required for inspection and maintenance of the makeup water supply pipeline. When inspection or repair required access, some vegetation could receive trampling or trimming and soils could be compacted. If soil were exposed, weeds could become established. Vegetation would be maintained in its existing grassland, shrub-steppe, or agricultural setting.

Transmission Line and Associated Facilities

Minimal or no impact to vegetation is expected during operation because activities would usually occur within established roads and turnarounds. Potential impacts to vegetation include the risk of fire from maintenance vehicles, lightning, and downed transmission lines. The project design includes ground wires and counterpoise to reduce fire risk from lightning strikes. Maintenance vehicles could impact vegetation if access to downed transmission lines becomes necessary. Temporary clearing and trampling of vegetation,

as well as soil compaction, could occur. Standard precautions would serve to minimize both of these potential impacts.

Vegetation within the transmission line right-of-way would be height-restricted to allow safe and uninterrupted operation of the transmission line. The vegetation along the proposed transmission line predominantly comprises either low-growing shrub-steppe or agricultural crops. For this reason, little trimming or clearing would be required along the right-of-way.

Cumulative impacts on vegetation resulting from existing and proposed transmission lines and natural gas pipelines in the region are discussed in Section 3.17, Cumulative Impacts.

Natural Gas Pipeline

Periodic vehicle access would be required for inspection and maintenance of the natural gas pipeline and tap station. When inspection or repair required access, some vegetation could receive trampling or trimming and soils could be compacted. If soil were exposed, weeds could become established. Vegetation would be maintained in its existing grassland, shrub-steppe, or agricultural setting.

Noxious Weeds

The erosion control, revegetation, and landscaping plan mentioned earlier would specify long-term vegetation maintenance objectives.

3.4.3 Impacts of Alternatives

3.4.3.1 Alternative Tower Height and Longer Span Design

The segment of transmission line considered for the taller structures and longer spans is primarily dryland agriculture and shrub-steppe. Potential construction, operation and maintenance impacts to wetlands and vegetation may be reduced because of greater flexibility in placement of towers to avoid sensitive resources and a need for fewer miles of access road or spurs due to having fewer towers. By constructing fewer towers and access roads, the acreage of disturbed area along roads that could enable the establishment of weeds would be reduced and the acreage of vegetation permanently and temporarily affected could be less.

3.4.3.2 Alternative Alignment near McNary Substation

The alternative route that puts the new transmission line east of the existing Lower Monumental–McNary route could potentially disturb a wetland with one tower location. Efforts would be made to design the line to avoid the wetland, if possible. There are no

other differences between these two options because vegetation is very similar between the two routes.

3.4.3.3 No Action Alternative

There would be no environmental impacts to wetlands and vegetation under the No Action Alternative. Current wetlands and vegetation resource quality, quantity and use in the project area would not be affected.

3.4.4 Mitigation Measures

No mitigation measures are proposed beyond those presented as part of the project design (see Appendix A).

3.4.5 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts have been identified. It is anticipated that wetlands lying immediately to the west and southwest of the project site could cease to exist due to cessation of irrigation practices at the project site. However, potential loss of wetland habitat value related to project construction and operation would be mitigated by the proposed enhancement of riparian habitats along the Walla Walla River via purchase and transfer of water rights and the planting of approximately 145 acres of land with native trees. As a result, the overall impact to habitat value is not considered significant.